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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/848,794 | 05/04/2001 | Adrian Boariu | 042933/302745 | 7888 |

826 7590 08/22/2006

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| EXAMINER |
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ZHENG, EVA Y

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| ART UNIT | PAPER NUMBER |
|----------|--------------|

2611

DATE MAILED: 08/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/848,794

Applicant(s)

BOARIU, ADRIAN

Examiner

Eva Yi Zheng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 11-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 11-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-5 and 11-15 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-5 and 11-15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding to claims 1 and 11, phrase "real-valued vector, free of imaginary component parts" does not comply with the specification. As described in the specification, X_{cD} is a real vector, however, $X_{cD} = [(X^R)^T (X^I)^T]^T$ (see equation 12), where R denote the real parts and I denote the imaginary parts. According to equation 12, X_{cD} is not free of imaginary component parts. Therefore, claims 1 and 11 are rejected.

4. Claims 1-5 and 11-15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter

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which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding to claims 1 and 11, phrase “actual values” and “actual symbols” was not taught in the specification.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-5 and 11-15 are rejected under 35 U.S.C. 102(e) as being unpatentable by Hammons, JR. et al (Pub. No.: US 2004/0146014).

a) Regarding to claim 1, Hammons disclose apparatus for a communication system in which space-time encoded data (58 in Fig. 2) is transmitted at a first location (70a in Fig. 2) and at least at a second location (70b in Fig. 2) for communication to a receive station (72 in Fig. 2), said receive station for decoding the space-time encoded data received thereat, said an apparatus comprising:

a decoder (80 in Fig. 2) coupled to receive indications of received values of the space-time encoded data received at the receive station, said decoder for directly combining values of the space-time encoded data transmitted from different ones of the first and at least second locations to the receive station (as shown in Fig. 2 and Fig. 3), the received values of symbols of the space-time encoded data, once directly combined, forming a real-valued vector, free of imaginary component parts, and said decoder further for detecting actual values of the symbols of the data, based upon the real-valued vector into which the received values are directly combined ([0005-0022]).

b) Regarding to claim 11, Hammons disclose a method for communicating in a communication system in which space-time encoded data (58 in Fig. 2) is transmitted at a first location (70a in Fig. 2) and at least a second location (70b in Fig. 2) for communication to a receive station (72 in Fig. 2), said method for decoding the space-time encoded data, once received at the receive station, said method comprising the operations of:

directly combining received values (80 in Fig. 2) of the space-time encoded data transmitted from different ones of the first and at least second location to the receive station (as shown in Fig. 2 and Fig. 3), the received values of symbols of the space-time encoded data, once directly combined, forming a real-valued vector, free of imaginary component parts ([0005-0022]);

detecting values of actual symbols of the data, once combined during said operation of directly combining received values of the space-time encoded data ([0005-0022]).

- c) Regarding to claim 2, Hammons disclose the apparatus of claim 1, wherein the space-time encoded data transmitted at the first and at least second locations comprises a space-time encoded block of data (as shown in Fig. 4), and wherein said decoder directly combines received values of the space-time encoded block (as shown in Fig. 2).
- d) Regarding to claim 3, Hammons disclose the apparatus of claim 2 wherein said decoder further forms a sequence estimate, the sequence estimate formed of a sequence of values of the actual symbols of the data ([0005-0022]).
- e) Regarding to claims 4 and 14, Hammons disclose wherein the communication system comprises a radio communication system (inherent as DS-CDMA; [0041]), wherein the first location at which the space-time encoded data is transmitted comprises a first antenna transducer (70a in Fig. 2), wherein the second location at which the space-time encoded data is transmitted comprises a second antenna transducer (70b in Fig. 2), the second antenna transducer spaced apart from the first antenna transducer (as shown in Fig. 2), wherein the receive station comprises a radio receiver (72 in Fig. 2), and wherein said decoder is coupled to receive indications of the space-time encoded data received at the radio receiver (80 in Fig. 2).
- f) Regarding to claims 5 and 15, Hammons disclose wherein the space-time encoded data transmitted at the first antenna transducer is transmitted upon a first communication path to the receive station (Ant1 in Fig. 2), wherein the space-time encoded data transmitted at the second antenna transducer is transmitted upon a second communication path to the receive station (Ant2 in Fig. 2), wherein the receive

station comprises at least one receive-antenna transducer (72 in Fig. 2) coupled to transducer indications of the space-time encoded data transmitted upon the first and second communication paths, respectively, into electrical form, and wherein the indications of the received values of the space-time encoded data to which said decoder is coupled to receive are in electrical form, subsequent to reception at the receive antenna transducer (as shown in Fig. 2).

g) Regarding to claim 12, Hammons disclose the method of claim 11 wherein the space-time encoded data transmitted at the first and at least second locations comprises a space-time encoded block of data (as shown in Fig. 4) and wherein said operation of directly combining received values of the space-time encoded data comprises directly combining values of the space-time encoded block (80 in Fig. 2).

h) Regarding to claim 13, Hammons disclose the method of claim 12 further comprising the an operation of forming a sequence estimate, the sequence estimate formed of a sequence of values of the actual symbols of the data detected during said operation of detecting values of actual symbols of the data ([0005-0022]).

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Y Zheng whose telephone number is 571-272-3049. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic
Business Center (EBC) at 866-217-9197 (toll-free).

Eva Yi Zheng
Examiner
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August 17, 2006

A handwritten signature in black ink, appearing to read "Chieh M. Fan", with a stylized flourish at the end.

CHIEH M. FAN
SUPERVISORY PATENT EXAMINER